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10/573,261	03/23/2006	Tetsunori Mitsuoka	1248-0862PUS1	3033
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EXAMINER DO, ANDREW V				
ART UNIT 2852		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/573,261

Applicant(s)

MITSUOKA ET AL.

Examiner

ANDREW V. DO

Art Unit

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-23 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 23 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

In response to amendments/arguments filed 7/16/2008

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore,

"the potential given member also functions as a heating member including a second heating means for heating the surface of the pressure member." (Claim

13)

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-9, and 19-21** are rejected under 35 U.S.C. 102(b) as being anticipated by Nanataki et al. (US 2001/0016132).

Regarding claims 1, 19, and 21, Nanataki et al. teaches an image forming apparatus comprising a fixing device (fixing apparatus, Fig. 3) including: a fixing member (fixing roller 1, paragraph 5) which is in contact with an unfixed image formed on a printing medium (recording medium, paragraph 5) with a developer ; and a pressure member (pressure roller, paragraph 5) which is in contact with the fixing member 1 (Fig. 3), the fixing member 1 and the pressure member 2 sandwiching the printing medium so as to feed the printing medium, so that the unfixed image on the printing medium is fixed on the printing medium (paragraph 5), the fixing device further including holding electric field generating means (voltage applying means) for generating a holding electric field which is an electric field in a direction for holding a reverse polarity developer on the printing medium (the bias applied to the fixing device is the same as the developer (claim 10) and it is therefore clear that the bias is opposite

that of the reverse polarity developer. It is inherent that charges of the same polarity repel and opposite polarities attract, therefore it is clear that the bias applied to the fixing apparatus would attract the reverse polarity developer to the printing medium), the reverse polarity developer having a polarity opposite to a polarity of the developer which forms an image on the printing medium.

Regarding claims 2, 3, and 20, Nanataki et al. also teaches a fixing device wherein said holding electric field generating means (voltage applying means) includes bias voltage applying means for applying a bias voltage (claim 1), which generates the holding electric field, to at least one of the fixing member and the pressure member (rotary member, claim 1).

Regarding claim 4, Nanataki et al. also teaches a fixing device wherein said bias voltage applying means applies as the bias voltage a voltage, having a same polarity as the reverse polarity developer, to the pressure member (in paragraph 73, Nanataki et al. teaches an embodiment where a bias of polarity opposite to that of the toner (developer used to create the image) is applied to the pressure roller. It is clear that if the polarity is opposite that of the developer then it is the same polarity as the reverse polarity.

Regarding claim 5, Nanataki et al. also teaches a fixing device wherein a time it takes for a potential to decay is 0.2 second or longer, the potential being produced by the bias voltage on a surface of a member to which the bias voltage is applied. Figures 11 and 12 show the "decay" of the surface potential of the fixing roller. Figure 12 teaches the "decay" in surface potential as the recording medium enters and exits the

nip portion between the pressure and fixing roller (paragraph 60). Figure 11 shows the "decay" of the surface voltage of a fixing roller over 100 sheets fed (which clearly take longer than 0.2 seconds).

Regarding claim 6, Nanataki et al. also teaches a fixing device wherein an absolute value of a current is $0.05\ \mu\text{A}$ or more and $150\ \mu\text{A}$ or less (paragraph 38), the current flowing when the bias voltage is applied and flowing in a member to which the bias voltage is applied (paragraph 38).

Regarding claim 7, Nanataki et al. also teaches a fixing device wherein the fixing member **19** includes a conductive core bar (aluminum core member **16**), an intermediate layer (primer layer **17**) on the conductive core bar, and a surface insulating layer (pure fluororesin layer **18**) on the intermediate layer **17** (paragraphs 35 and 38, Fig. 3).

Regarding claim 8, Nanataki et al. also teaches a fixing device wherein the surface insulating layer **18** of the fixing member **19** has a surface resistivity of $10^{14}\ \Omega\cdot\text{cm}$ or higher (paragraph 64); and said bias voltage applying means applies the bias voltage to the fixing member **19** (Fig. 13).

Regarding claim 9, Nanataki et al. also teaches a fixing device wherein the surface insulating layer **18** of the fixing member **19** has a volume resistivity higher than $10^{13}\ \Omega\cdot\text{cm}$ (paragraph 64); and said bias voltage applying means applies the bias voltage to the fixing member **19** (Fig. 13).

4. **Claims 1, 2, 10, 12, 15, 16, and 21-22** is rejected under 35 U.S.C. 102(b) as being anticipated by Ohtsuka et al. (US 5,331,385).

Regarding claims 1, 2 and 21, Ohtsuka et al. teaches an image forming apparatus comprising a fixing device including: a fixing member (fixing roller **1**) which is in contact with an unfixed image formed on a printing medium (recording material) with a developer (col. 3 lines 35-40); and a pressure member (pressing roller **2**) which is in contact with the fixing member **1**, the fixing member **1** and the pressure member **2** sandwiching the printing medium so as to feed the printing medium, so that the unfixed image on the printing medium is fixed on the printing medium (col. 3 lines 35-40, Fig. 1), the fixing device further comprising holding electric field generating means (power source **19**, Fig. 2) for generating a holding electric field which is an electric field in a direction for holding a reverse polarity developer on the printing medium (as stated above, the bias is created to be the same as the toner (col. 4 lines 45-48) which would clearly attract any reverse polarity toner on the non-imaging surface of the printing medium to be attracted towards the printing medium), the reverse polarity developer having a polarity opposite to a polarity of the developer which forms an image on the printing medium (Fig. 5).

Regarding claim 10, Ohtsuka et al. also teaches a fixing device wherein the pressure member **2** includes a conductive core bar (electrically conductive core metal **17**, Fig. 10A) , an insulating elastic layer (silicone sponge layer **15**, Fig. 10A) on the conductive core bar **17**, an intermediate layer (conductive silicone rubber layer **16**, Fig. 10A) on the insulating elastic layer **15**, and a surface resistive layer (conductive tube **18**,

Fig. 10A) on the intermediate layer **16**; a potential given member (wire that connects the power supply **19** to the pressure member **2**, Fig. 14) is provided on a surface of the pressure member **2**; said bias voltage applying means **28** (Fig. 16) applies the bias voltage to the potential given member; and the bias voltage is applied through the potential given member to a surface of the pressure member **2** or near the surface of the pressure member **2** (Fig. 16).

Regarding claim 12, Ohtsuka et al. also teaches a fixing device wherein the surface resistive layer **18** of the pressure member **2** has a volume resistivity of $10^5 \Omega \cdot \text{cm}$ or higher (col. 3 lines 60-65); and said bias voltage applying means applies the bias voltage to the pressure member **2** (Fig. 14).

Regarding claim 15, Ohtsuka et al. also teaches a fixing device wherein the potential given member is a conductive electrode member (wire connecting power supply **19** to the pressure member **2**) or a semiconductive electrode member.

Regarding claim 16, Ohtsuka et al. also teaches a fixing device wherein the bias voltage is applied from first bias voltage applying **19** means to the fixing member **1** (Fig. 17); and the bias voltage is applied from second bias voltage applying means **28** to the potential given member (wire connecting second bias voltage applying means **28** to pressure member **2**, Fig. 17).

Regarding claim 22, Ohtsuka et al. also teaches an image forming apparatus further comprising a transfer device (image transfer roller **27**, Fig. 8) which is provided upstream of the fixing device in a feeding direction of the printing medium (Fig. 8) and which transfers a developer image from a developer image carrier (photosensitive

drum) to the printing medium, the transfer device using a contact transfer method in which the transfer device is in contact with the developer image carrier (Fig. 1 and 8, col. 3 lines 20-24).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nanataki et al. ('132) in view of Kobaru et al. (US 6,438,348).

Nanataki et al. teaches, as stated above, a fixing device wherein the surface insulating layer **18** of the fixing member **19** has a surface resistivity of $10^{14} \Omega\text{-cm}$ or higher (paragraph 64); and said bias voltage applying means applies the bias voltage to the fixing member **19** (Fig. 13). Nanataki et al. also teaches said bias voltage applying means applies the bias voltage to the pressure member **2** (paragraph 73).

Nanataki et al. is silent as to a fixing device wherein the surface resistive layer of the pressure member **2** has a surface resistivity of $10^7 \Omega\text{-cm}$ or higher.

Kobaru et al. teaches a fixing apparatus wherein the surface resistivity of the pressurizing roller **2** is $10^7 \Omega\text{-cm}$ or higher (col. 1 lines 51-60).

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified the image forming apparatus of Nanataki et al. to have

included the pressure member with a surface resistivity of $10^7 \Omega\text{-cm}$ or higher in order to ensure that the pressure member has the appropriate pressure resistance for fixing the unfixed developed image while being able to hold the correct biasing potential to prevent offsets (Kobaru et al. col. 1 lines 51-60).

7. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsuka et al. ('385).

Ohtsuka et al. teaches everything recited above and the use of an electrically discharging brush **21** as a means for biasing the pressure member **2** (Fig. 6).

Ohtsuka et al. is silent as to wherein the potential given member (electrically discharging brush **21**) is a cleaning member for removing the developer remaining on the surface of the pressure member **2**.

It would have been obvious, if not clear, to one of ordinary skill at the time of invention that the electrically discharging brush **21** of the pressure member **2** can be used as a cleaning member for removing the developer remaining on the surface of the pressure member **2** as it clearly makes physical contact with the pressure member **2** and would therefore be capable of removing developer on the surface of the pressure member **2**.

8. **Claims 17 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsuka et al. ('385) in view of Takeuchi (US 2002/0186981).

Regarding claim 17, Ohtsuka et al. teaches everything recited above and a fixing device further comprising at least one temperature detecting element

(temperature detector **9**) which detects surface temperatures of the fixing member **1**, the pressure member **2**, and the heating member (heater **10**) (col. 1 lines 27-31).

Ohtsuka et al. is silent as to the temperature detecting element **9** including an insulating film layer and a heat-resistant release layer on a heat-receiving surface of the temperature detecting element and a protective layer on a surface opposite to the heat-receiving surface, or any specifics of the configuration of the temperature detecting element **9**.

Takeuchi teaches a fixing device comprising at least one temperature detecting element (temperature sensor **6**, Fig. 2) which detects surface temperatures of the fixing member **1**, the pressure member **8**, and the heating member **5a-b**, the temperature detecting element **6** including an insulating film layer (layer **16**, Fig. 2) and a heat-resistant release layer (glass fiber sheet **15**, Fig. 2) on a heat-receiving surface of the temperature detecting element **6** and a protective layer (protective member **13**, Fig. 2) on a surface opposite to the heat-receiving surface.

It would have been obvious to one of ordinary skill in the art at the time of invention to have configured the temperature detecting element of Ohtsuka et al. in a similar manner as the temperature detecting element of Takeuchi in order to ensure accurate temperature measurements and preventing damage to the temperature sensor in the temperature detecting element from the frictional force of rubbing against the fixing member.

Regarding claim 18, Ohtsuka et al. as modified above by Takeuchi also teaches a fixing device wherein the insulating film layer **16**, the heat-resistant release layer **15**,

and the protective layer **13** of the temperature detecting element **6** are extended to a housing of the temperature detecting element so as to cover an elastic member (element **12**, Fig. 2) of the temperature detecting element **6**.

9. **Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsuka et al. ('385) in view of Takeuchi ('981) further in view of Yoshiki (US 2004/0190929).

10. Ohtsuka discloses all that is discussed above and also discloses a fixing device wherein said holding electric field generating means **19** including bias voltage applying means (wire connecting holding electric field generating means **19** to the fixing member, Fig. 6) for applying a bias voltage, which generates said holding electric field, to at least one of said fixing member **1** and said pressure member **2** (Fig. 6), said fixing member **1** including heating means **10** for heating a surface of the fixing member **1**, the fixing device further comprising a thermostat **9** which cuts off power distribution to said heating means (col. 3 lines 29-34) in response to an excessive temperature rise of said fixing member (the heater is turned on and off to maintain a constant temperature and would therefore have upper and lower limits of operation), the thermostat being provided on said frame (Fig. 6).

11. Ohtsuka remains silent as to the fixing device further comprising: a ball bearing which is fixed to said fixing member, the ball bearing being supported by a frame via a bearing holder made of material having a thermal plasticity.

12. Yoshiki discloses a bearing seal structure that comprises a ball bearing **18** used in an image forming apparatus; the ball bearing **18** being supported by a frame via a bearing holder **17** made of material having a thermal plasticity (the bearing holder **17** is

made of polyacetal [0041] and Applicant teaches that polyacetal is a material having a thermal plasticity). Yoshiki's bearing seal structure reduces slide loads and exhibit a desirable sealing effect and durability [0009].

13. It would have been obvious to one of ordinary skill in the art at the time of invention to have modified the fixing device of Ohtsuka to include the bearing seal structure of Takeuchi in order to ensure smooth operation and lasting durability of the ball bearing.

14. Ohsuka as modified by Yoshiki discloses a fixing device wherein in the case abnormal overheat occurs, the bearing holder **17** is deformed and melted as a result of its receiving (i) heat of the abnormal overheat (the bearing holder **17**, as taught above, is made of a material with thermal plasticity and would therefore behave just as the Applicant's holder would since they are of the same material), and (ii) pressure load (from compression spring **3**, Fig. 6) of the fixing member **1** and the pressure member **2**, the deformation and melting of the bearing holder **17** resulting in narrowing a gap between the thermostat **9** and the fixing member **1** (Applicant teaches that the material with thermal plasticity would deform under excessive heat, therefore the compression spring **3** would continue to urge the pressure member **2** toward the thermostat **9**).

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Response to Arguments

1. Applicant's arguments filed 7/16/2008 have been fully considered but they are not persuasive.
2. Regarding the Drawing Objections:
 - a. Although the specification teaches the claimed limitations, Applicant is reminded that every feature of the invention specified in the claims **MUST** be shown in the drawings. The portion of the specification cited by the Applicant as containing the subject matter does not reference a figure to show these claimed features.
3. Regarding §102(b) rejection - Nanataki

Applicant argues that Nanataki fails to disclose "reverse polarity toner" and associated problems therewith, as well as does not disclose any solution for dealing with the problems of "reverse polarity toner". Applicant also argues that because Nanataki does not disclose "reverse polarity toner", no evidence is provided to show that Nanataki was aware of problems associated with "reverse polarity toner".

Examiner disagrees. Nanataki clearly discloses Applicant's claimed structure. Applicant's sole argument for patentability is that Nanataki does not address "reverse polarity toner" and therefore does not disclose the claimed invention. Contrary to Applicant's remarks, Nanataki clearly discloses a holding electric field generating means for generating a holding electric field which is an electric field in a direction that would hold reverse polarity developer on the printing medium. Nanataki teaches that a repelling force is generated between the fixing roller and the toner [0036] and, as it is well known that toner of random potential scatters throughout the image forming apparatus, this would clearly attract toner of "reverse polarity" beneath the printing medium toward the printing medium. Nanataki also teaches that an attractive force is generated between the pressure roller and the toner [0036] and this would clearly repel "reverse polarity toner" beneath the printing medium toward the printing medium as well.

The absence of the disclosure regarding "reverse polarity toner" does not preclude the structure from meeting Applicant's claimed invention.

4. Regarding §102(b) rejection – Ohtsuka

Applicant argues that Ohtsuka fails to disclose "reverse polarity toner" and thus, no evidence is provided to show that Ohtsuka was aware of problems associated with "reverse polarity toner".

Examiner disagrees. Ohtsuka clearly discloses Applicant's claimed structure. Applicant's sole argument for patentability is that Ohtsuka does not address "reverse polarity toner" and therefore does not disclose the claimed

invention. Contrary to Applicant's remarks, Ohtsuka clearly discloses a holding electric field generating means for generating a holding electric field which is an electric field in a direction that would hold reverse polarity developer on the printing medium. Ohtsuka teaches that the toner used is charged with a negative polarity, just as Applicant's invention is shown to do in Fig. 1, and the fixing roller 1 is provided with potential having the same polarity as the toner (col. 5 lines 50-56), also just as the Applicant's invention is shown to do in Fig. 1. Ohtsuka also teaches the pressing roller 2 is provided a potential having a polarity opposite from that of the toner (col. 5 lines 56-61), which is also what the Applicant's invention is shown to do in Fig. 8. The absence of the disclosure regarding "reverse polarity toner" does not preclude the structure from meeting Applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW V. DO whose telephone number is (571)270-3420. The examiner can normally be reached on M-F 7:30-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on (571) 272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David M Gray/
Supervisory Patent Examiner,
Art Unit 2852

AVD